

1 What is claimed is:

2       1. A serial bus system comprising:  
3            a bus master ; and  
4            at least one bus slave , connected to the bus master via at least  
5 one bus line,  
6 the bus system being

7            operable in a normal mode in which, at the latest after a normal  
8 cycle time has elapsed, the bus master transmits digital signals to the at  
9 least one bus slave, and the at least one bus slave transmits digital signals  
10 back to the bus master after each such transmission,

11            with each of the transmitted digital signals being interpreted as a  
12 logic zero when a first predetermined current waveform is applied to the  
13 bus line, and

14            being interpreted as a logic one when a second predetermined  
15 current waveform, which is different to the first predetermined current  
16 waveform, is applied to the bus line, and

17            operable in an energy saving mode in which the bus master  
18 does not transmit any digital signals to the at least one bus slave within the  
19 normal cycle time.

1       2. The bus system as claimed in claim 1, wherein, in the energy  
2 saving mode and at the latest after an energy saving cycle time has  
3 elapsed, which is longer than the normal cycle time, , the bus master  
4 transmits digital signals to the at least one bus slave, and the at least one  
5 bus slave transmits digital signals back to the bus master after each such  
6 transmission.

1       3. The bus system as claimed in claim 1, wherein in the energy  
2 saving mode, the bus master no longer transmits any digital signals to the  
3 at least one bus slave.

1       4. The bus system as claimed in claim 3, wherein in the energy  
2 saving mode, at least the at least one bus slave monitors the bus line for  
3 the application of at least one of the first and second predetermined current  
4 waveform, and wherein the at least one bus slave switches back to the  
5 normal mode upon detection of the application of at least one of the first  
6 and second predetermined current waveform.

1       5. The bus system as claimed in claim 3, wherein in at least the  
2 energy saving mode, at least one of the first and second predetermined  
3 current waveform can be applied automatically to the bus line by the at  
4 least one bus slave, and wherein in the energy saving mode, the bus  
5 master monitors the bus line for the application of the at least one of the  
6 first and second predetermined current waveform, and the bus master  
7 switches back to the normal mode upon detection of the application of the  
8 at least one of the first and second predetermined current waveform.

1       6. The bus system as claimed in claim 1, wherein in order to  
2 switch the at least one bus slave to the energy saving mode, the bus  
3 master transmits a switching signal to the at least one bus slave.

1       7. The bus system as claimed in claim 1, wherein the at least one  
2 bus slave monitors for the end of the normal cycle time, and the at least  
3 one bus slave automatically switches to the energy saving mode when the  
4 normal cycle time elapses.

1       8. The bus system as claimed in claim 1 wherein a predetermined  
2 zero current level is applied to the bus line in order to apply the first  
3 predetermined current waveform during a zero time, and a predetermined  
4 one current level is applied to the bus line in order to apply the second  
5 predetermined current waveform during a one time which is different to the  
6 zero time.

1       9. The bus system as claimed in claim 8, wherein a current pause  
2 exists between the application of the zero current level and the application  
3 of the one current level.

1       10. The bus system as claimed in claim 9, wherein the zero current  
2 level is equal to the one current level.

1       11. The bus system as claimed in claim 1, wherein said bus system  
2 is used in a motor vehicle.

1       12. The bus system as claimed in claim 11, wherein said bus  
2 system is used in a passenger-carrying motor vehicle.

1        13. The bus system as claimed in claim 4, wherein in at least the  
2 energy saving mode, at least one of the first and second predetermined  
3 current waveform can be applied automatically to the bus line by the at  
4 least one bus slave, and wherein in the energy saving mode, the bus  
5 master monitors the bus line for the application of the at least one of the  
6 first and second predetermined current waveform, and the bus master  
7 switches back to the normal mode upon detection of the application of the  
8 at least one of the first and second predetermined current waveform.

1        14. The bus system as claimed in claim 2, wherein in order to switch  
2 the at least one bus slave to the energy saving mode, the bus master  
3 transmits a switching signal to the at least one bus slave.

1        15. The bus system as claimed in claim 2, wherein the at least one  
2 bus slave monitors for the end of the normal cycle time, and the at least  
3 one bus slave automatically switches to the energy saving mode when the  
4 normal cycle time elapses.

1        16. The bus system as claimed in claim 2, wherein a predetermined  
2 zero current level is applied to the bus line in order to apply the first  
3 predetermined current waveform during a zero time, and a predetermined  
4 one current level is applied to the bus line in order to apply the second  
5 predetermined current waveform during a one time which is different to the  
6 zero time.

1        17. The bus system as claimed in claim 2, wherein said bus system  
2 is used in a motor vehicle.